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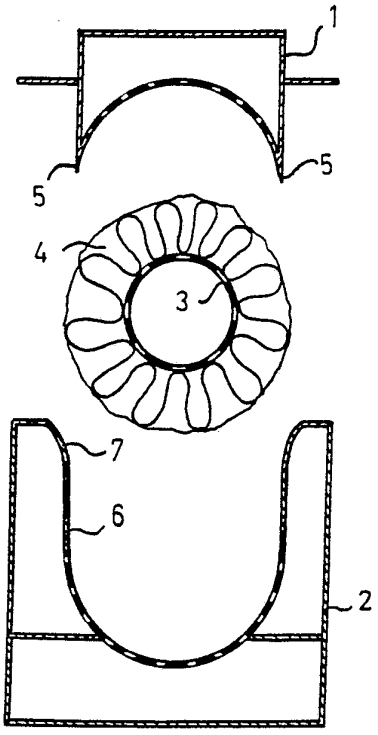
(54) Title: AN APPARATUS FOR CURING INSULATING CHUTES




(57) Abstract

The invention relates to an apparatus for curing insulating chutes. The apparatus comprises a two-part mould (1, 2) one part of which is a male part (1) and the other a female part (2). The leading edge (5) of the male part (1) comes into contact with the inner surface (6) of the female part (2) and slides therealong before making contact with the insulating chute preform (4) positioned in the mould. The object is to prevent the spreading of wool from the mould between the mould halves.

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# An apparatus for curing insulating chutes

The present invention relates to an apparatus for curing insulating chutes, comprising a two-part mould and means for applying curing air through the mould and through an insulating chute preform arranged around a core disposed in the mould.

The prior art disclosed above is represented by US-PS 2 778 759.

A disadvantage of the apparatus known from the prior art is the formation of burrs on the outer surface of the chute at the junction plane of the mould halves. The halves cannot fully make contact with each other because of burrs formed by the wool spreading between the planes.

The object is to provide a new apparatus for curing insulating chutes without the formation of such burrs.

The apparatus according to the invention is mainly characterized in that the two-part mould comprises a male part and a female part, and that a leading edge in the male part is arranged to come into contact with the inner surface of the female part and to slide therealong before making contact with the insulating chute preform.

Preferably the leading edge of the male part is sharp and flexible, whereas the female part comprises a straight guide surface extending from the diametral plane of the insulating chute towards the male part and terminating in a widening receiving opening, the flexible leading edge of the male part being arranged to come into contact with the inner surface of the female part within the area of said widening receiving opening.

Since the leading edge of the male part slides

along the inner surface of the female part in close contact therewith, no opening enabling the formation of a burr during the curing is left between the mould parts.

With large insulating chutes generally having an inner diameter of 90 mm or more, it is preferable to use a perforated core and apply curing air from each one of the mould parts through the insulating chute preform into the core cavity, or vice versa.

With small insulating chutes generally having an inner diameter less than 90 mm, it is preferable to use a solid core and apply curing air from one mould part through the insulating chute preform into the other mould part.

In the following the invention will be described with reference to the attached schematical drawing.

Figure 1 shows a mould in an open position.

Figure 2 shows the mould in a partially closed position.

Figure 3 shows the mould in a closed position.

The reference numeral 1 indicates the male part of the curing mould; the reference numeral 2 indicates the female part of the mould; 3 indicates a core; and 4 indicates an insulating chute preform arranged around the core. Both the male part 1 and the female part 2 comprise a perforated inner surface preferably semi-cylindrical in shape.

The male part 1 preferably comprises a sharp flexible leading edge 5, whereas the inner surface of the female part 2 extends from the diametral plane of the semi-cylinder towards the male part preferably in the form of a straight guide surface 6 terminating in a widening receiving opening 7.

The core 3 with the insulating chute preform 4,

supported e.g. at the ends thereof by a transporter, is brought to the open mould to a position shown in Figure 1. The female part 2 of the mould is lifted to a position shown in Figure 2, whereafter the male part 1 of the mould is lowered to the position shown in Figure 3.

The flexible leading edges 5 of the male part 1 preferably first come into contact with the inner surface of the receiving opening 7 in the female part 2 and slide onwards along the guide surface 6, being pressed against the guide surface until the preform 4 makes contact with the semi-cylindrical surface of the male part 1. The leading edges 5 of the male part thereby extend approximately up to the diametral plane of the semi-cylindrical surface of the female part.

If, as in the specific case of the drawing, the insulating chute is large, that is, its inner diameter is generally at least about 90 mm, the core 3 to be used is perforated and curing air is applied through each one of the hollow mould parts 1 and 2 through the insulating chute preform 4 into the internal cavity of the core 3, arrows 11 in Figure 3. With a small chute, it is preferable to use a solid core and to apply curing air e.g. from a cavity 12 in the male part 1 through the chute preform 4 into a cavity 14 in the female part 2 of the mould. In this case, the female part 2 of the mould is preferably divided into two cavities 13 and 14, whereby the air pressure in the cavities 13 is atmospheric.

Claims:

1. An apparatus for curing insulating chutes, comprising a two-part mould (1, 2) and means for applying curing air through the mould (1, 2) and through an insulating chute preform (4) arranged around a core (3) disposed in said mould, c h a r a c t e r i z e d in that the two-part mould (1, 2) comprises a male part (1) and a female part (2), and that a leading edge (5) in the male part (1) is arranged to come into contact with an inner surface (6) of the female part (2) and to slide therealong before making contact with the insulating chute preform (4).

2. An apparatus according to claim 1, c h a r a c t e r i z e d in that the leading edge (5) of the male part (1) is sharp and flexible.

3. An apparatus according to claim 1 or 2, c h a r a c t e r i z e d in that the female part (2) comprises a straight guide surface (6) extending towards the male part (1) and terminating in a widening receiving opening (7).

4. An apparatus according to claim 2 and 3, c h a r a c t e r i z e d in that the flexible leading edge (5) of the male part (1) is arranged to come into contact with the inner surface of the female part within the area of said widening receiving opening (7).

5. An apparatus according to claim 1 for large insulating chutes, c h a r a c t e r i z e d in that the core (3) is perforated and curing air (10) is arranged to be applied from each one of the mould parts (1, 2) through the insulating chute preform (4) into the core cavity, or vice versa.

6. An apparatus according to claim 1 for small insulating chutes, c h a r a c t e r i z e d in that

the core (3) is solid and curing air (11) is arranged to be applied from one mould part (1) through the insulating chute preform (4) into the other mould part (2).

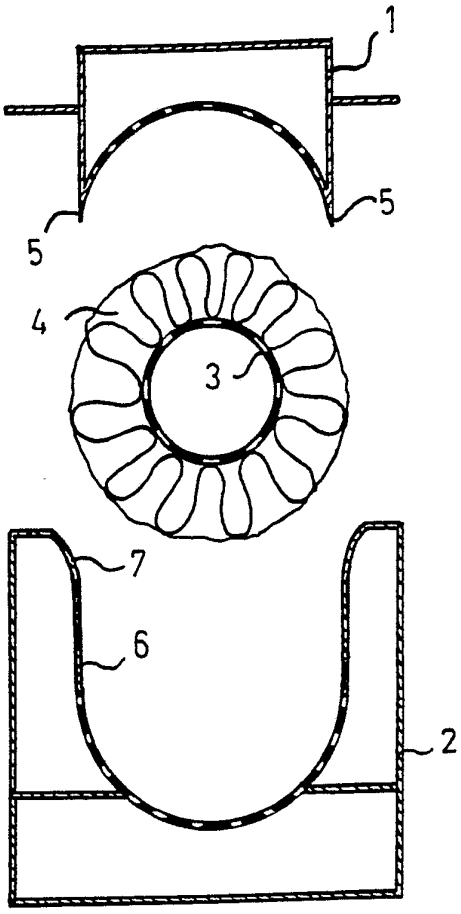


FIG. 1

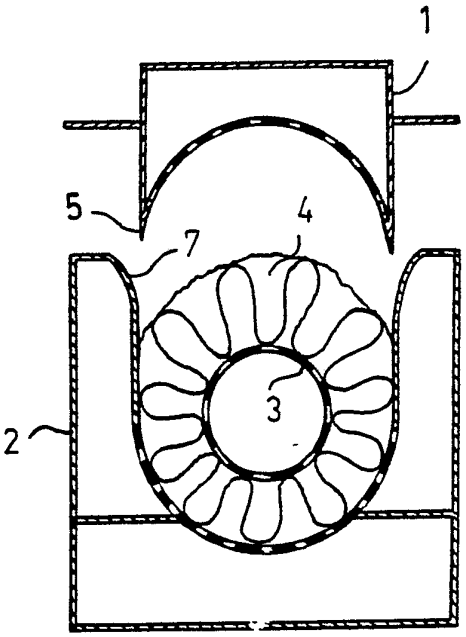


FIG. 2

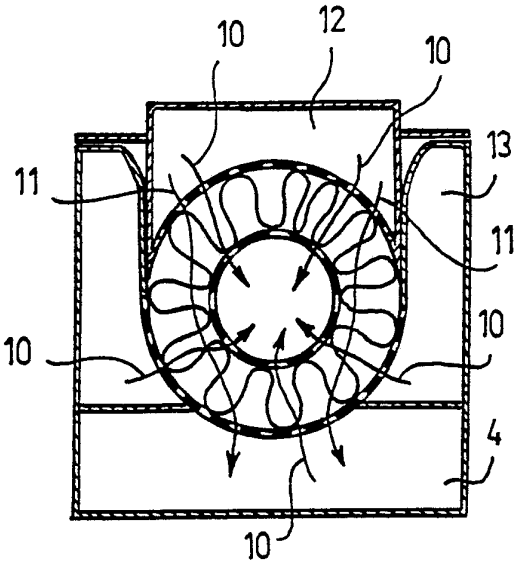


FIG. 3

# INTERNATIONAL SEARCH REPORT

International Application No PCT/FI89/00012

**I. CLASSIFICATION OF SUBJECT MATTER** (if several classification symbols apply, indicate all) [6]

According to International Patent Classification (IPC) or to both National Classification and IPC 4

F 16 L 59/02

**II. FIELDS SEARCHED**

**Minimum Documentation Searched** [7]

| Classification System | Classification Symbols |
|---|---|
| IPC 4 | F 16 L 59/00, /02, /04, /14; B 29 C 1/00,33/00,/42 |
| US Cl | 138:103,114,118,145,146,149,156 |

**Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched** [8]

SE, NO, DK, FI classes as above.

**III. DOCUMENTS CONSIDERED TO BE RELEVANT** [9]

| Category * | Citation of Document, [11] with indication, where appropriate, of the relevant passages [12] | Relevant to Claim No. [13] |
|---|---|---|
| Y | US, A, 2 778 759 (JOSEPH F. STEPHENS AND GLENN W. KERR) 22 January 1957 See column 5, lines 43-46 and lines 70-74 and figure 2 | 1-6 |
| Y | DE, A1,1 779 712 (LEHNHARDT, WILHELM) 9 September 1971 See figure 4 & NL, 6913729 LU, 59438 FR, 2018129 CH, 511691 BE, 738242 | 1-6 |
| Y | DE, A1,1 525 860 (SCHACHTER, HAIM) 7 August 1969 See page 2, lines 7-18 | 1-6 |

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**IV. CERTIFICATION**

| Date of the Actual Completion of the International Search | Date of Mailing of this International Search Report |
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